PROGRAM CHARTER
FOR

ECOSYSTEM OBSERVATIONS

Program Manager: Ned Cyr
Ecosystem Goal Team Lead: Steve Murawski

1. EXECUTIVE SUMMARY.

NOAA's Ecosystem Observation Program (EOP) is a partnership between four Line Offices, NOAA Fisheries Service, NOAA Research, National Ocean Service, and NOAA Satellites and Information. It was created to represent NOAA's ecosystem observing activities that are related to and support the Ecosystem Mission Goal. The Program includes multiple coastal and oceanic observing systems and, in partnership with other observing efforts, provides support to the Programs and Matrices internal and external to the Goal. It provides scientific information on the status of living coastal and marine resources and their habitat by conducting monitoring and observing activities, producing routine assessments and forecasts of the current and future states of these resources and the ecosystems as a whole, and distributing this information to NOAA's clients and resource users. This compliments the scientific contribution of the Ecosystem Research Program (ERP), which conducts research leading to the development of new products, technology and information. The two programs work together in that the ERP products, once operational, contribute to the EOP's activities, and the EOP's observations feed back into the ERP's research and modeling.

The Program is driven by multiple mandates to provide the monitoring and routine assessments required to ensure the long-term health, quality, and sustainability of living coastal and marine resource populations and their habitats. To this end, the EOP plays an important role in supporting NOAA's ecosystem-based management efforts. Examples of our mandates include: U.S. Ocean Action Plan, Magnuson Stevens Fisheries Conservation and Management Act, Marine Mammal Protection Act, Endangered Species Act and the National Coastal Monitoring Act.

The EOP's current capabilities represent routine monitoring, assessment, and operational forecasts of living marine and coastal resources and their environment that directly support management decisions. The EOP also includes data/information management and quality assurance activities, as well as the production of routine scientific and technical reports (e.g., living marine resource stock assessments). The program supports appropriate collaborative linkages to

all Ecosystem Goal Programs (Corals, Habitat, Coastal & Marine Resources Program, Protected Species, Fisheries Management, Enforcement, ERP, Aquaculture), other Goal Teams (e.g., Climate, Weather & Water), and NOAA Councils (e.g., Observing Council and Ocean Council). The Program provides a strong ecosystem component to NOAA's contribution to the Integrated Ocean Observing System (IOOS), being developed by Ocean.U.S.

The Ecosystem Observations Program represents the primary NOAA ecosystem observing activities included in NOAA's Observing System Architecture and NOAA's contribution to the U.S. Integrated Ocean Observing System (IOOS). The EOP's compliancy with the Data Management and Communications (DMAC) standards and protocols will ensure the Ecosystem Programs, i.e., the Ecosystem Goal, will support interoperability and seamless transmission of ecosystem-based observational data among NOAA Line Offices, intra-agency, state, academia, and others. This will involve the utilization of current and future technologies to access and manage data and information.

The EOP's data gathering activities are conducted from ships, aircraft, and other platforms within the U.S. Exclusive Economic Zone, on the high seas, and within other countries' waters as determined by the conditions of treaties and agreements to which the U.S. is signatory. The EOP conducts the necessary analysis, assessments, forecasts, system development and data quality, information transfer, outreach and education activities primarily at NOAA facilities around the country.

EOP website: http://www.st.nmfs.gov/eop/

Board of Directors: Chaired by the Program Manager who has 51% of the vote concerning all programmatic decisions. Membership includes the EOP Program Manager and the Managers or their representatives from each of the Ecosystem Goal Team programs. The Board provides the program manager with advice and guidance on program policy, program composition, and reviews, comments and clears on draft program materials produced by the program's Support Team (see below). Membership of the EOP Board includes:

Program Manager
Ecosystem Research Program Manager or representative
Protected Species Program Manager or representative
Fisheries Management Program Manager or representative
Aquaculture Program Manager or representative
Enforcement Program Manager or representative
Coastal & Marine Resources Program Manager or representative
Habitat Program Manager or representative
Corals Program Manager or representative

2. PROGRAM REQUIREMENTS- See Appendix A for complete list

A. Requirement Drivers

Summary of Major Requirements Drivers (Appendix A has complete list)

Legislative Authorities

1. Magnuson Stevens Fishery Conservation and Management Act (1976, 1996)
   - National Standard 1 "Conservation and management measures shall prevent overfishing while achieving, on a continuing basis, the optimum yield from each fishery for the United States fishing industry."
   - National Standard 2 - Conservation and management measures shall be based upon the best scientific information available. The Secretary is responsible for producing a document that provides Councils with a summary of information concerning the most recent biological condition of stocks and marine ecosystems.
     Fishery Management Plans must specify objective and measurable criteria for identifying when the fishery to which the plan applies is overfished (with an analysis of how the criteria were determined and the relationship of the criteria to the reproductive potential of stocks of fish in that fishery)
   - National Standard 5 "Conservation and management measures shall, where practicable, consider efficiency in the utilization of fishery resources; except that no such measure shall have economic allocation as its sole purpose."
   - National Standard 7 "Conservation and management measures shall, where practicable, minimize costs and avoid unnecessary duplication."
   - National Standard 8 "(8) Conservation and management measures shall, consistent with the conservation requirements of this Act (including the prevention of overfishing and rebuilding of overfished stocks), take into account the importance of fishery resources to fishing communities
   - Conserve and manage the fishery resource off the U.S. coasts and U.S. anadromous species and Continental Shelf fishery resources
   - Support the implementation and enforcement of international fishery agreements for the conservation and management of highly migratory species
   - The Secretary shall, in cooperation with …., develop recommendations for implementation of a standardized fishing vessel registration and information management system on a regional basis.
   - The Secretary shall report annually to the Congress and the Councils on the status of fisheries within each Council's geographical area of authority
   - Authorizes the placement of observers to collect information needed for fishery management and conservation as well as establishing a standardized reporting methodology to assess the amount and type of

bycatch occurring in the fishery.

- Research to support fishery conservation and management, including but not limited to, biological research concerning the abundance and life history parameters of stocks of fish, the interdependence of fisheries or stocks of fish, the identification of essential fish habitat, the impact of pollution on fish populations, the impact of wetland and estuarine degradation, and other factors affecting the abundance and availability of fish.
- Provides authority to the Secretary to use private sector vessels to survey the fishery resources and to structure competitive solicitations to provide compensation for these surveys. The Act also directs the Secretary to provide a role for commercial fishermen in such research, including involvement in field testing and conservation engineering research. These activities are considered cooperative research with the fishing industry.
- The Secretary shall initiate and maintain, in cooperation with the Councils, a comprehensive program of fishery research to carry out and further the purposes, policy, and provisions of this Act. Such program shall be designed to acquire knowledge and information, including statistics, on fishery conservation and management and on the economics and social characteristics of the fisheries. Section 404(c)(1), identifies areas of research, and the implicit need for more and better data: · Research to support fishery conservation and management, including but not limited to, biological research concerning the abundance and life history parameters of stocks of fish, the interdependence of fisheries or stocks of fish, the identification of essential fish habitat, the impact of pollution on fish populations, and other factors affecting the abundance and availability of fish.
- Promote the protection of essential fish habitat and provide a description of essential fish habitat for each fishery.
- Promote domestic commercial and recreational fishing under sound conservation and management principles
- Provide for preparation and implementation of fishery management plans to achieve and maintain the optimum yield of each fishery on a continuing basis

2. Marine Mammal Protection Act
   - Protect marine mammals and their habitats to maintain sustainable populations as functional components of the ecosystems of which they are a part.
   - Directs the Secretary of Commerce (with responsibility delegated to NMFS) to undertake population surveys of whales, dolphins, porpoises, sea lions and seals in U.S. waters and annually report their status in Stock Assessment Reports.

- Directs the agency to deploy observers on fishing vessels (establishes observer guidelines and duties) or requires vessels to monitor incidental mortality and serious injury of marine mammals during the course of commercial fishing.
- Directs the Secretary of Commerce to undertake a scientific research program to monitor the health and stability of the Bering Sea marine ecosystem and to resolve uncertainties concerning the causes of population declines of marine mammals, sea birds, and other living resources of that marine ecosystem.
- Take into account fishery economics when designing Take Reduction Plans, which reduce the incidental mortality or serious injury of marine mammals incidentally taken in the course of commercial fishing

3. Endangered Species Act
   - The ESA requires the Secretary of Commerce (with responsibility delegated to NMFS) to evaluate the status of species (or lower taxons) and determine whether or not the species is threatened or endangered; to designate critical habitat; and to evaluate Federal actions and ensure that these actions do not jeopardize the continued existence of threatened or endangered species or adversely modify critical habitat. The information standard for the ESA is the best available scientific information. Conduct a biological assessment for the purpose of identifying any endangered species or threatened species which is likely to be affected by such action if deemed necessary during a consultation process for a NMFS action (§ 1536)
   - Requires the federal government to protect and conserve species and populations that are endangered, or threatened with extinction. Observers are used to monitor impacts and certify that takes of endangered species do not exceed the authorized incidental take limit, as well as to provide data for recovery plans.
   - Take into consideration the economic impact, and any other relevant impact, of specifying any area as critical habitat.

4. National Environmental Policy Act:
   - The NEPA requires each federal agency to assess the impact of alternatives for their actions (including activities conducted, funded or permitted by the agency) on the human environment. The cumulative impacts of each activity in combination with other natural and anthropogenic phenomena are included among the analyses.

5. National Coastal Monitoring Act (Title V of the Marine Protection, Research, and Sanctuaries Act

- Requires the Administrator of the Environmental Protection Agency and the NOAA Under Secretary, in conjunction with other Federal, state and local authorities, jointly to develop and implement a program for the long-term collection, assimilation, and analysis of scientific data designed to measure the environmental quality of the nation's coastal ecosystems.

6. Coastal Zone Management Act of 1972 ; Coastal Zone Act Reauthorization Amendments of 1990
   - Protect, develop and enhance coastal zone resources
   - Encourage and assist the states with development and implementation of management programs for coastal areas

7. Regulatory Flexibility Act
   - Conduct a regulatory flexibility analysis, including analyzing the economic impact on small entities, for every proposed rulemaking and final rule

Policy Directives

1. U.S. Ocean Action Plan
   - Support ecosystem-based approaches to management, which requires indicators of ecosystem health and socio-economic benefits to be monitored and assessed.
   - Support a Regional Partnership in the Gulf of Mexico: Administration officials will meet with the appropriate regional representatives in the spring of 2005 to explore partnership opportunities. (pg. 11)
   - Advance Ocean Stewardship through Implementation of Cooperative Conservation Executive Order (pg.11)
   - Develop an Ocean Research Priorities Plan and Implementation Strategy - The Implementation Strategy will identify how the various ocean science sectors (government, academic, industry, and other non-government entities) can and should be engaged, individually or through partnerships. These types of strategies would include cooperative research) (pg12)
   - Build a Global Earth Observation Network, Including Integrated Oceans Observation: Develop a strategy for integration and possible convergence of existing and future requisite coastal observing systems of the IOOS. (pg. 13, 14)
   - Create a National Water Quality Monitoring Network: The National Water Quality Monitoring Council will provide advice and recommendations regarding the design and creation of a coordinated, comprehensive national water quality monitoring network. (pg. 15)
   - Increase Ocean Education Coordination: Data collected through ocean and Earth observations are translated into usable forms for teachers, students, and the general public (pg.16)
   - Support the Ocean Science Initiative at the Smithsonian Institution (pg.17)

- Harmonize Recreational Fishing Data Acquisition for Fishery Management Purposes (pg.19)
- Establish Guidelines and Procedures for the Use of Science in Fisheries Management (pg.19)
- Implement New National Bycatch Strategy (p. 22) - Specific mention of the national cooperative research program and coordinator (pg 22)
- Propose New Limits on Atlantic Gill Net Fishing to Protect Dolphins and Sea Turtles - The proposal calls on NOAA to conduct research with the fishing industry into ways to promote safer fishing gear. (pg.22)
- Partnership Creation: White Water to Blue Water Initiative: Assist in the formation of dynamic partnerships that promote sustainable environmental management in the Caribbean region. (pg. 35)
- Support an Integrated Approach to Oceans Management and Reduction of Land-based Pollution (pg.36)
- Advance the Use of Large Marine Ecosystems (pg. 36)
- Link the Global Marine Assessment and Global Earth Observation System of Systems: Seek to create international links between the Global Marine Assessment and Global Earth Observing System of Systems. (pg. 37)

2. Executive Order 12866 for EPA (1993)
   - Assess the quantitative and qualitative costs and benefits of all regulations, to maximize the net benefits (economic, environmental, public health and safety, and other advantages; distributive impacts; and equity)

3. National Spatial Data Infrastructure
   - Develop operational ecosystem data portals that support Ecosystem Goal Programs and IOOS
   - Provide access to the long-term coastal data record to support monitoring, prediction, and analyses
   - Create a unified long-term database of coastal and marine datasets.

4. The Federal Geographic Data Committee
   - Develop operational ecosystem data portals that support Ecosystem Goal Programs and IOOS
   - Provide access to the long-term coastal data record to support monitoring, prediction, and analyses
   - Create a unified long-term database of coastal and marine datasets.

5. OMB Circular A-16 (Coordination of Geographic Information and Related Spatial Data Activities
   - (#10, 11, 12) To improve management decisions in the coastal environment. Provide access to the long-term coastal data record to

support monitoring, prediction, and analyses; to help in the formulation of public policy; to facilitate ecosystem approach to management. Create a unified long-term database of coastal and marine datasets. Create a catalog of coastal and marine data and create a virtual network of distributed nodes re data repositories. Develop operational ecosystem data portals that support Ecosystem Goal Programs and IOOS (Outcomes). Develop, in cooperation with state and local governments (including tribal), and the private sector, a coordinated National Spatial Data Infrastructure (NSDI) to support public and private applications of geospatially-enabled data. Establish a coordinated approach to develop (electronically) the NSDI

B. Mission Requirements

Summary of Major Requirements (Appendix A has complete list)

1. Provide the Best Available Science to support the conservation and sustainable management of living marine resources (Magnuson Stevens Fishery Conservation and Management Act, Marine Mammal Protection Act, Endangered Species Act, National Environmental Policy Act)

2. Provide Sociocultural data and analysis to allow resource managers to make informed decisions based on societal costs and benefits (Magnuson Stevens Fishery Conservation and Management Act, Executive Order 12866 for EPA, Regulatory Flexibility Act, National Environmental Policy Act)

3. Provide a comprehensive data and information system that allows the EOP and NOAA to manage, archive, and disseminate ecosystem information for NOAA's clients within the agency, as well as the public, private, and NGO sectors (National Spatial Data Infrastructure, The Federal Geographic Data Committee, OMB Circular A-16, Coordination of Geographic Information and Related Spatial Data Activities)

4. Develop and implement a program for the long-term collection, assimilation, and analysis of scientific data designed to measure the environmental quality of the nation's coastal ecosystems and to protect and enhance the coastal zone (National Coastal Monitoring Act (Title V of the Marine Protection, Research, and Sanctuaries Act, Coastal Zone Management Act of 1972 ; Coastal Zone Act Reauthorization Amendments of 1990)

5. Build a Global Earth Observation Network, Including Integrated Oceans Observation: Develop a strategy for integration and possible convergence of existing and future requisite coastal observing systems of the IOOS (U.S. Ocean Action Plan)

6. Support ecosystem-based approaches to management by providing the best available science on the ecosystem components and processes that affect and interact with living marine resources (Magnuson Stevens Fishery Conservation and Management Act, Marine Mammal Protection Act, U.S. Ocean Action Plan)

3. LINKS TO THE NOAA STRATEGIC PLAN

The EOP was created to represent NOAA's ecosystem observing activities residing within the four NOAA Line Offices that are related to and that support the Ecosystem Mission Goal to "Protect, restore, and manage the use of coastal and ocean resources through an ecosystem approach to management"

A. Ecosystem Goal Outcomes: The EOP contributes to both Ecosystem Goal Outcomes in the following ways:

- *Healthy and productive coastal and marine ecosystems that benefit society*

The EOP conducts routine monitoring, assessment and applied forecasts of living marine and coastal resources and their habitats. This includes surveys, monitoring and assessment of the economic and sociocultural aspects of these ecosystems.

- *A well-informed public that acts as a steward of coastal and marine ecosystems*.

The EOP produces scientific and technical publications through the Scientific Publications Office, and provides outreach and education materials to NOAA's constituents. The program also participates in public and other educational information exchange opportunities (e.g., commercial and recreational fishing events, conferences, and meetings, etc. geared towards specific target audiences).

B. Ecosystem Goal Performance Objectives: The EOP contributes to all three of the Ecosystem Goal Performance Objectives in the following ways:

- *Improve the ecological health within regional coastal and marine ecosystems and assess socio-economic benefits*

As described above, the EOP conducts routine monitoring, assessment and applied forecasts of living marine and coastal resources and their habitats, including economic and sociocultural monitoring and assessment. The National Status and Trends Program (within the EOP) is specifically focused on coastal ecosystem health, while coastal and marine related activities are spread throughout the other EOP Capabilities.

- *Assess, model and forecast ecosystem resources for management decisions.*

The activities described under Ecosystem Goal Objective #1, above, all directly support management decisions concerning living marine and coastal resources both internal and external to NOAA.

- *Increase portion of population that is knowledgeable about coastal and marine ecosystem issues.*

As described under Ecosystem Goal Outcome #1, the EOP produces scientific and technical publications through the Scientific Publications Office, and provides outreach and education materials to NOAA's constituents. The program also participates in public and other educational information exchange opportunities (e.g., commercial and recreational fishing events, conferences, and meetings, etc. geared towards specific target audiences).

C. Goal Strategies: The EOP contributes to all of the Ecosystem Goal Strategies in the following ways:

- *Engage and collaborate with our partners to achieve regional objectives by delineating regional ecosystems, forming regional ecosystem councils, and implementing cooperative strategies to improve regional ecosystem health.*

The EOP contributes ecosystem information that can be used to delineate regional ecosystems. An example of EOP's cooperative strategies is the Cooperative Research Program. Through this program, the EOP works with the States, academia and industry to monitor living marine resources and related ecosystem phenomena. The EOP also provides funding through grants to groups outside of NOAA to encourage cooperation in improving ecosystem observations and health.

- *Manage uses of ecosystems by applying scientifically sound observations, assessments, and research findings to ensure the sustainable use of resources and to balance competing uses of coastal and marine ecosystems.*

The EOP provides routine observations, assessments and applied forecasts that directly support management decisions related to the sustainable use of living marine and coastal resources and to balance competing uses of coastal and marine ecosystems.

- *Improve resource management by advancing our understanding of ecosystems through better simulation and predictive models. Build and advance the capabilities of an ecological component of the NOAA global environmental observing system to monitor, assess, and predict national and regional ecosystem health, as well as to gather information consistent with established social and economic indicators.*

The EOP represents a major component of NOAA's ecosystem observing capability (including economic and sociocultural), which provides information that serves as the basis for predictive ecosystem modeling and evaluation of the effects of management actions. The program also provides data that allows the

monitoring of ecosystem indicators (e.g., regional specific species and species groups) being developed within the Ecosystem Goal.

- *Develop coordinated regional and national outreach and education efforts to improve public understanding and involvement in stewardship of coastal and marine ecosystems.*

As described under Ecosystem Goal Outcome #1, the EOP produces scientific and technical publications through the Scientific Publications Office, and provides outreach and education materials to NOAA's constituents. The program also participates in public and other educational information exchange opportunities (e.g., commercial and recreational fishing events, conferences, and meetings, etc. geared towards specific target audiences).

- *Engage in technological and scientific exchange with our domestic and international partners to protect, restore, and manage marine resources within and beyond the Nation's borders.*

Through its capability 5 activities, the EOP participates in technical and scientific information exchange opportunities, both nationally and internationally.

4. PROGRAM OUTCOMES

Long-Term

1. A sustained, coordinated, national and international network of observations and analysis that systematically acquires and disseminates data and information on present and future states of the coasts and oceans, meeting the monitoring, assessment and forecast needs required by NOAA and society for ecosystem-based management.

2. A comprehensive system for NOAA's ecosystem data and information management that includes acquisition, quality control, validation, reprocessing, storage, retrieval, dissemination, and archiving, using innovative technologies.

3. A well- informed public that acts as a steward of coastal and marine ecosystems.

Mid-Term

1) Increased understanding and monitoring of fish stocks to support timely and accurate stock assessments and forecasts

2) Increased understanding and monitoring of species listed under ESA and MMPA to support timely and accurate assessments and recovery strategies

Increased integration of ecosystem (e.g., physical, lower trophic) observations into fish and protected species assessments and forecasts

4) Increased number of ecosystem parameters that describe the status and trends of coastal ecosystems and are amenable for use in ecological forecasting

5) Provide integrated routine indicators to show “status of the ecosystem”

Increased ability to assess the economic and social impacts of existing policies and proposed management measures on fishermen, shoreside firms, coastal communities, and the affected public

6) Increased development of IOOS through contribution to the “national backbone” and support of Regional Associations (RAs)

7) Implementation of new procedures, data systems, and techniques to manage, archive, and disseminate ecosystem information for NOAA’s clients within the agency, as well as the public, private, and NGO sectors

8) Increased public awareness of ecosystem diversity and function and improved sense of stewardship for ecosystem and living marine resources conservation

5. PROGRAM ROLES AND RESPONSIBILITIES.

This program is established and managed with the procedures established in the NOAA Business Operations Manual (BOM). Responsibilities of the Program Manager are described in the BOM. Responsibilities of other major participants are summarized below:

A. Participating Line Offices, Staff Offices, and Council Responsibilities:

1. NOAA Fisheries Service (NMFS) is responsible for the coordination and administration of the agency's contribution to the NOAA 'end-to-end' coastal and oceanic ecological observing system. NMFS components of this system include: fisheries and protected resources surveys, ecosystem surveys, economic and sociocultural surveys, recreational and commercial statistics, fisheries observer coverage, and cooperative research. NMFS is also responsible for science quality assurance of agency observing system products and maintaining collaborative linkages to other Federal and state agencies, stakeholders, and the public.

2. National Ocean Service (NOS) is responsible for monitoring and assessment of chemical pollution and effects in coastal and estuarine areas and the Great Lakes, and for working with other federal agencies and entities in the development of a national water quality monitoring network, including action items for which NOAA is the lead agency.

3. NOAA Research (OAR) is responsible for providing observation, analysis, and modeling of the physical environment to support operational forecasts.

4. NOAA Satellites and Information (NESDIS) is responsible for data management, archiving, and information services provided by the NOAA National Data Center infrastructure to support ecosystem goal objectives. Additionally NESDIS provides technical support and leadership in integration of information services located within ecosystem observation programs to achieve NOAA-wide objectives for IOOS, GEOSS and related end-to-end data system integration efforts.

5. NOAA Marine and Aviation Operations (NMAO) is responsible for providing ship and aircraft support to the EOP.

6. NOAA Observing System Council is responsible for coordinating observational and data management activities across NOAA; proposing priorities and investment strategies for observation related initiatives; and identifying programs that might benefit most from integration. The Council is also as the principal advisory body to the Administrator for the agency's observing system activities and interests.

7. NOAA Oceans Council is responsible for coordinating ocean activities across NOAA; proposing priorities and investment strategies for ocean-related initiatives; identifying ocean and coastal programs that might benefit most from integration; and coordinating NOAA's participation in the interagency National Oceanographic Partnership Program (NOPP). The NOC is also authorized to develop a strategy and serve as the agency focal point for responding to and implementing the recommendations of the U.S. Commission on Ocean Policy.

8. Climate Goal: Coordinate with the Climate and Ecosystems Program of the Climate Goal on the investigation of physical oceanographic processes that effect long and short term biological productivity in the oceans, particularly for living marine resources.

B. External Agency/Organization Responsibilities

1. Ocean.US coordinates the U.S. Integrated Ocean Observing System (IOOS), to which the EOP provides ecosystem observational support (i.e. National Backbone) as well as discovery, access, and delivery of marine and coastal observational data streams (i.e. Data Management and Communication).

2. EPA is one of the other federal agencies/entities that is required to be a leader in the development and operation of a national water quality monitoring network

3. USGS is one of the other federal agencies/entities that is required to be a leader in the development and operation of a national water quality monitoring network

4. Cooperative Ecosystem Studies Unit (CESU) Network is a partnership program of 18 federal agencies, including NMFS, and 181 universities. There are 17 separate regional CESUs that make up the national network, each with the objective of developing partnerships among federal agencies and universities to develop a program that involves the biological, physical, social, and cultural sciences needed to address resource issues and interdisciplinary problem-solving at multiple scales and in an ecosystem context. Special emphasis is placed on working collaboratively and in partnership on joint research projects.

6. END USERS OR BENEFICIARIES OF PROGRAM:

1. NOAA**:** A successful Ecosystem Observations Program will provide the routine monitoring, assessment, and forecasting information and analysis products required for NOAA to meet its science and management mandates. Within the Ecosystem Goal, the EOP directly supports the Fisheries Management Program, Protected Species Management Program, Habitat Program, Corals Program, Aquaculture Program, Coastal &Marine Resources Program, Ecosystem Research Program and Enforcement. The EOP supports programs in other Goals including the Climate and Ecosystems Program.

2. Management Community (beyond NOAA)

- Fishery Management Councils
- Other Federal Agencies
- State and Local Governments
- International Organizations

Accurate and timely information on the status of NOAA's trust living marine resources and their habitats will allow resource managers to develop and plan activities and management actions that are in compliance and consistent with federal laws and regulations. Specifically, this information will benefit decision-making for the conservation and management of living marine resources and the habitats on which they depend.

3. General Public**:** The implementation of successful, science based conservation and management programs will ensure the availability of living marine resources and habitats for the benefit (both tangible and non tangible) of society. These programs will also avoid costly use restrictions and prohibitions necessary for the recovery of depleted living marine resources and restoration of ocean and coastal habitats.

4. Environmental Non-government Organizations (NGOs)**:** Environmental NGOs use the monitoring, assessment and forecast information (data and synthesized products) produced by the EOP to monitor the status of living marine resources and their environment. The NGOs also use the economic and socio-cultural information collected and produced by the EOP. In some cases, NGOs use the information provided by the EOP to make management decisions (e.g., for planning and implementing resource and habitat management and restoration projects).

5. Research Community: Providing public access to EOP data and products provides the research community with up-to-date, quality information on living marine resources and their environment. The Fisheries Information System, Marine Recreational Fisheries Systems, and services provided by the National Oceanographic Data Center (NODC), and the National Coastal Data Development Center (NCDDC) are examples of EOP venues for such data.

6. Industry: The EOP conducts monitoring, assessment and forecasting that are crucial for sustainable management and conservation of living coastal and marine resources and their environment. Industries related to the marine environment (e.g., fisheries and tourism) are reliant on the EOP for these reasons. Industry may also participate in EOP activities through cooperative research programs.

	ECOSYSTEM OBSERVATIONS PROGRAM (EOP) REQUIREMENTS AND DRIVERS		
CAPABILITIES	**REQUIREMENT DRIVERS**		**REQUIREMENTS**
	1.Magnuson Stevens Fishery Conservation and Management Act (1976, 1996)		1a. Conserve and manage the fishery resource off the U.S. coasts and U.S. anadromous species and Continental Shelf fishery resources
			1b. Support the implementation and enforcement of international fishery agreements for the conservation and management of highly migratory species
			1c. Promote domestic commercial and recreational fishing under sound conservation and management principles
1. Fisheries Monitoring, Assessment, and Forecasts			1d. Provide for preparation and implementation of fishery management plans to achieve and maintain the optimum yield of each fishery on a continuing basis
			1e. National Standard 2 - Conservation and management measures shall be based upon the best scientific information available. The Secretary is responsible for producing a document that provides Councils with a summary of information concerning the most recent biological condition of stocks and marine ecosystems. Fishery Management Plans must specify objective and measurable criteria for identifying when the fishery to which the plan applies is overfished (with an analysis of how the criteria were determined and the relationship of the criteria to the reproductive potential of stocks of fish in that fishery)

			1f. The Secretary shall initiate and maintain, in cooperation with the Councils, a comprehensive program of fishery research to carry out and further the purposes, policy, and provisions of this Act. Such program shall be designed to acquire knowledge and information, including statistics, on fishery conservation and management and on the economics and social characteristics of the fisheries. Section 404(c)(1), identifies areas of research, and the implicit need for more and better data: · Research to support fishery conservation and management, including but not limited to, biological research concerning the abundance and life history parameters of stocks of fish, the interdependence of fisheries or stocks of fish, the identification of essential fish habitat, the impact of pollution on fish populations, and other factors affecting the abundance and availability of fish.
			1g. The Secretary shall, in cooperation with, develop recommendations for implementation of a standardized fishing vessel registration and information management system on a regional basis.
			1h. The Secretary shall report annually to the Congress and the Councils on the status of fisheries within each Council's geographical area of authority.
	2. National Environmental Policy Act		2a. The NEPA requires each federal agency to assess the impact of alternatives for their actions (including activities conducted, funded or permitted by the agency) on the human environment. The cumulative impacts of each activity in combination with other natural and anthropogenic phenomena are included among the analyses.
	3. American Fisheries Act		3a.Implement the fishing allocations specified for the Bering Sea Aleutian Islands pollock fishery

	4. Anadromous Fish Conservation Act		4a. Conduct investigations, engineering and biological surveys, and research to carry out the program and stream clearance activities; construct, install, maintain, and operate devices and structures to improve feeding and spawing conditions, protection, control of sea lamprey, and fish hatcheries; conduct studies and make recommendations regarding the development and management of any body of water for the conservation and enhancement of anadromous fishery resources and the fish in the Great Lakes and Lake Champlain that ascend streams to spawn (§ 757b)
	5. Atlantic Coastal Fisheries Cooperative Management Act of 1993		5a. The 1996 amendments make special provision for American lobster. The Secretary of Commerce, in cooperation with the Secretary of the Interior, must develop and implement a program to support the Atlantic States Marine Fisheries Commission in interstate fishery management. The program must include activities to support state cooperation in the collection, management and analysis of fishery data; law enforcement; habitat conservation; fishery research; and fishery management planning. The Commission must prepare and adopt coastal fishery management plans for the conservation of coastal fishery resources.
	6. Coastal Ocean Program, § 201(c) of Public Law 102-567		6a. Authorizes a Coastal Ocean Program. “Such program shall augment and integrate existing programs of the National Oceanic and Atmospheric Administration and shall include efforts to improve predictions of fish stocks, to better conserve and manage living marine resources . . .”.
	7. Columbia Basin Fishery Development Act (Mitchell Act)		7a. Authorizes the Secretary of Commerce to conduct investigations, surveys and experiments for the conservation of fishery resources; construction and installation of devices to improve feeding, spawning and migration; other activities needed for fish conservation. (16 U.S.C. §§ 755-757)
	. Dolphin Protection Consumer Information Act (1990-1997)		8a. Establishes dolphin-safe standards for fisheries

	9. Fish and Wildlife Act of 1956		9a. Inquiries into whether a diminution in the number of the food fishes of the U.S. coast and lakes has taken place, the extent of the diminution, what causes the diminution and whether protective or precautionary measures should be adopted. Conduct training programs and undertake research and development activities to improve fish and wildlife law enforcement
	10. Fish and Wildlife Coordination Act		10a. Requires that wildlife, including fish, receive equal consideration and be coordinated with other aspects of water resource development. Requires consultation with the FWS and NMFS whenever any body of water is proposed to be modified in any way and a Federal permit or license is required. This consultation determines the possible harm to fish and wildlife resources, and the measures that are needed to both prevent the damage to and loss of these resources, and to develop and improve the resources, in connection with water resource development.
	11. Government Performance and Results Act		11a. The Government Performance and Results Act (GPRA) requires federal agencies to develop and implement an accountability system based on performance measurement, including setting goals and objectives and measuring progress toward achieving them.
	12. Interjurisdictional Fisheries Act		12a. The Interjurisdictional Fisheries Act promotes and encourages State activities in support of the management of interjurisdictional fishery resources throughout their range. The Act provides the Secretary of Commerce to assist states manage their interjurisdictional fishery resources. The Act authorizes appropriations for ...the three interstate fishery commissions
	13. Lacey Act Amendments of 1981		13a. Conduct marine forensic research to support NOAA enforcement mission including best techniques to allow identification of stock, species or taxon from a variety of fresh, decomposed, cooked, or preserved tissues or specimens (marine forensics) for trade or impact of human activities management. No specified end-time. Internal planning sessions are used which included analysis of solicited external opinions, reviews and recommendations for scientific research focus. Coastal Monitoring and Assessment /Enforcement (NOS).

	14. National Sea Grant College Program Act		14a. The objective of the Sea Grant Act is "to increase the understanding, assessment, development, utilization, and conservation of the Nation's ocean, coastal, and Great Lakes resources by providing assistance to promote a strong educational base, responsive research and training activities, broad and prompt dissemination of knowledge and techniques, and multidisciplinary approaches to environmental problems." The Act directs the Secretary of Commerce to " . . .provide support for . . . national strategic investments in fields relating to ocean, coastal, and Great Lakes resources..." The Act funds a national sea grant network with 30 Sea Grant state programs, which include fisheries extensions.
	15. Antarctic Marine Living Resources Convention Act		15a.The Antarctic Marine Living Resources Convention Act implements the *Convention on the Conservation of Antarctic Marine Living Resources*. The Act makes it unlawful to harvest marine species in a way that would damage ecological relationships among harvested, dependent, and related populations.
	16. Convention for Inter-American Tropical Tuna Commission		16a. Conservation and management of yellowfin, skipjack, and other tunas in the Eastern Pacific Ocean
	17. Convention on Future Multilateral Cooperation of Northwest Atlantic Fisheries		17a. An international organization whose object shall be to contribute through consultation and cooperation to the optimum utilization, rational management and conservation of the fishery resources of the Convention Area. This organization shall be known as the Northwest Atlantic Fisheries Organization

	18. Convention on the Conservation and Management of Pollock Resources in the Central Bering Sea (1994)		18a. To establish an international regime for conservation. management, and optimum utilization of pollock resources in the Convention Area; to restore and maintain the pollock resources in the Bering Sea at levels which will permit their maximum sustainable yield; to cooperate in the gathering and examining of factual information concerning pollock and other living marine resources in the Bering Sea; and to provide, if the Parties agree, a forum in which to consider the establishment of necessary conservation and management measures for living marine resources other than pollock in the Convention Area as may be required in the future.
	19. Food and Agricultural Organization of the United Nations		19a. FAO's Major Programme on Fisheries aims to promote sustainable development of responsible fisheries and contribute to food security. To implement this Major Programme, the Fisheries Department focuses its activities, through programmes in Fishery Resources, Fishery Policy, Fishery Industries and Fishery Information on three medium-term strategic objectives, including Global Monitoring and Strategic Analysis of Fisheries, with priority given to development of databases and analysis of information using modern information systems
	20. International Commission for the Conservation of Atlantic Tunas (Atlantic Tunas Convention Act of 1975)		20a. Conservation and management of Atlantic bluefin tuna in the Atlantic Ocean and the Mediterranean Sea. Submit a biennial report on bluefin tuna that includes information on U.S. catches and the status of stocks
	21. International Counsel for the Exploration of the Sea		21a. ICES is the organisation that coordinates and promotes marine research in the North Atlantic.

	22. North Pacific Anadromous Fish Commission		22a. Emphasizing the importance of scientific research for the conservation of anadromous stocks in the North Pacific Ocean; Desiring to promote the acquisition, analysis and dissemination of scientific information pertaining to anadromous stocks and ecologically related species in the North Pacific Ocean;
	23. Northern Pacific Halibut Act		23a. The Northern Pacific Halibut Act authorizes the Secretary of Commerce to enforce the terms of the Convention between the U.S. and Canada for the *Preservation of the Halibut Fishery of the Northern Pacific Ocean and Bering Sea*. Upon request of the Commission, conduct scientific and other programs to assist the Commission in carrying out its duties under the Convention.
	24. Pacific Salmon Treaty Act of 1985		24a. The Pacific Salmon Treaty Act implements the *Pacific Salmon Treaty* signed between the U.S. and Canada in 1985. Prepare all statements, reports and information required by the treaty, and submit them to the Secretary of State. Agencies of the U.S. may cooperate with scientific and other programs to assist the Commission and Panels in carrying out their treaty responsibilities.
	25. PICES (North Pacific Marine Science Organization) (1991)		25a. "The purpose…(a) to promote and coordinate marine scientific research in order to advance scientific knowledge of the area concerned and of its living resources, including but not necessarily limited to research with respect to the ocean environment and its interactions with land and atmosphere, its role in and response to global weather and climate change, its flora, fauna and ecosystems, its uses and resources, and impacts upon it from human activities; and (b) to promote the collection and exchange of information and data related to marine scientific research in the area concerned."
	26. South Pacific Tuna Act of 1988		26a. The South Pacific Tuna Act implements the *Treaty on Fisheries between the Governments of Certain Pacific Island States and the U.S.* signed in 1987. The Act authorizes the Secretary of Commerce to issue and enforce regulations necessary to implement the Treaty. The Secretary operates a permitting system for fishing within the Treaty waters.

	27. Tuna Conventions Act of 1950		27a. The Tuna Conventions Act implements the *Convention for the Establishment of an International Commission for the Scientific Investigation of Tuna* and the Convention for the Establishment of an Inter-American Tropical Tuna Commission (IATTC). Divide Convention waters into areas, establish open or closed seasons, limit the size and quantity of the permissible catch, limit or prohibit incidental catch of regulated species, require vessel clearance certificates, and take other measures deemed necessary to implement IATTC recommendations; as necessary.
	28. Whaling Convention Act		28a. The Whaling Convention Act authorizes the Secretary of Commerce to enforce the provisions of the *International Convention for the Regulation of Whaling. Undertake comprehensive studies of all whales found in waters subject to the jurisdiction of the U.S. and provide the recommendations to the U.S. Commissioner*
	29. Executive Order 13158 regarding Marine Protected Areas (2000)		29a. Help protect the significant natural and cultural resources within the marine environment for the benefit of present and future generations by strengthening and expanding the Nation's system of marine protected areas (MPAs). To this end, ... (b) develop a scientifically based, comprehensive national system of MPAs representing diverse U.S. marine ecosystems, and the Nation's natural and cultural resources;
	30. GAO 04-606 Pacific Groundfish Assessments		30a. Collect additional data necessary to produce reliable stock assessments. Establish a standard approach to assuring data quality of non-NMFS data used in assessments. Enhance assessment models to present quantitative estimates of uncertainty. Develop a comprehensive plan to integrate the NMFS Stock Assessment Improvement Plan with other plans and budget requests.
	31. U.S. Ocean Action Plan		31. See list of recommendations at end of file: USAOP#1 (pg11), USOAP#4 (pg13,14), USAOP#7 (pg16), USAOP#8 (pg17), USAOP#9 (pg19), USAOP#10 (pg19), USAOP#14 (pg36)

	33. Fisheries Information System Plan		33a. To create an umbrella program that coordinates techniques to gather and disseminate data nationally while accounting for the unique characteristics of regional commercial and recreational fisheries.
	34. Marine Fish Stock Assessment Improvement Plan (2001)		34a. Description of the overall goals, associated resource needs, and development of performance measures for improving data collections, and assigning new FTEs to stock assessment activities. Used as basis for Capability 1 FTE needs
	35. NOAA Fisheries Data Acquisition Plan (1999)		35a. The Plan outlines a strategy for acquiring the critical at-sea fishery-independent data through an appropriate blend of NOAA Fishery Survey Vessel and chartered vessel days-at-sea. Primary basis for the vessel days at sea needed for Capability 1.
	36. NOAA NMFS Requirements for Improved and integrated Conservation of Fisheries, Protected Resources and Habitat (2003)		36a. Section 1. Improving the Information Base for Stewardship: Data Collection [Fishery Survey Vessels, Chartered Vessels Days at Sea]; Section 2. Determining Abundance/Yields – New Ecosystem Research and Analysis:Improve and Expand Assessments [Fisheries Stock Assessment Improvement], Incorporate Ecosystem Factors into Assessments [Fish Habitat Assessment and Restoration]
	37. NOAA Ship Platform Requirements for the Ten-Year Period from FY 2003–FY 2012		37a. This 2003 study examined ship platform requirements for six NOAA mission areas, including 'fisheries surveys and science.' The principal recommendation in this mission area calls for the construction of two additional new NOAA Fishery Survey Vessels for a fleet total of six by 2011.
	38. Effects of Trawling and Dredging on Seafloor Habitat. NRC, 2002.		38a. Identifies research needs for better understanding of these effects.

	39. Elements of a Science Plan for the North Pacific Research Board (NRC, 2004)		39a. The NPRB's overall mission is to develop a comprehensive, high-caliber science program that provides better understanding of the North Pacific, Bering Sea, and Arctic Ocean ecosystems and their fisheries.
	40. Improving Fish Stock Assessments (NRC, 1998)		40a. Recommends at least one reliable abundance index should be available for each assessed fish stock. Such indices are dependent on data collected by fishery-independent surveys supported by charter fishing vessels and NOAA Fishery Survey Vessels.
	41. Improving the Collection, Management, and Use of Marine Fisheries Data. NRC, 2000		41a. A particular need is to improve the quality of data from commercial and recreational fisheries, so that stock assessment scientists can be justifiably confident about using such data in their models. The committee believes that all the participants in fisheries management should take actions to improve the collection, management, and use of fisheries data. Included favorable recommendations for the Fishery Information System, recreational fishery data, cooperative research, new Fisheries Survey Vessels.
	42. Improving the Use of the "Best Scientific Information Available" Standard in Fisheries Management. NRC, 2004		42a. Guidance on use of best scientific information when information is uncertain.
	43. Marine Protected Areas: Tools for Sustaining Ocean Ecosystems. NRC, 2001.		43a. Provides guidance on the scientific needs for understanding benefits of MPAs.

	44. Review of Northeast Fishery Stock Assessments (NRC, 1998)		44a. Stock assessment is the science of data collection, analysis, and modeling that provides the basis for prudent, sustainable exploitation of fishery resources. It includes the provision of scientific advice about management strategies used to exploit fish stocks and the integration of science and scientific advice into the management process. In particular, the feedback between stock assessment and fisheries management has to be included to manage fisheries effectively.
	45. Science and Its Role in the National Marine Fisheries Service (NRC, 2002)		45a. The review finds that fisheries management depends on the availability of a variety of biological and environmental data on a timely basis. Fish assessments could be improved primarily through increased expenditures for data collection and analysis, where the most reliable assessments are obtained from fishery-independent surveys conducted by NOAA Fisheries.
	46. The Decline of the Steller Sea Lion in Alaskan Waters: Untangling Food Webs and Fishing Nets (2003)		46a. Guidance for the scientific studies needed to better provide the best information on the ecosystem of Stellar sea lions
	47. International Dolphin Conservation Program (1997)		47a. Establishes dolphin-safe standards for fisheries
	1. Antarctic Marine Living Resources Convention Act		1a. The Antarctic Marine Living Resources Convention Act implements the *Convention on the Conservation of Antarctic Marine Living Resources*. The Act makes it unlawful to harvest marine species in a way that would damage ecological relationships among harvested, dependent, and related populations.

2.Protected Species Monitoring, Assessment and Forecasts	**2. Convention for Inter-American Tropical Tuna Commission**		2a. Conservation and management of yellowfin, skipjack, and other tunas in the Eastern Pacific Ocean
	3. Food and Agricultural Organization of the United Nations		3a. FAO's Major Programme on Fisheries aims to promote sustainable development of responsible fisheries and contribute to food security. To implement this Major Programme, the Fisheries Department focuses its activities, through programmes in Fishery Resources, Fishery Policy, Fishery Industries and Fishery Information on three medium-term strategic objectives, including Global Monitoring and Strategic Analysis of Fisheries, with priority given to development of databases and analysis of information using modern information systems
	4. International Counsel for the Exploration of the Sea		4a. ICES is the organisation that coordinates and promotes marine research in the North Atlantic.
	5. North Pacific Anadromous Fish Commission		5a. Emphasizing the importance of scientific research for the conservation of anadromous stocks in the North Pacific Ocean; Desiring to promote the acquisition, analysis and dissemination of scientific information pertaining to anadromous stocks and ecologically related species in the North Pacific Ocean;
	6. PICES (North Pacific Marine Science Organization) (1991)		6a. “The purpose…(a) to promote and coordinate marine scientific research in order to advance scientific knowledge of the area concerned and of its living resources, including but not necessarily limited to research with respect to the ocean environment and its interactions with land and atmosphere, its role in and response to global weather and climate change, its flora, fauna and ecosystems, its uses and resources, and impacts upon it from human activities; and (b) to promote the collection and exchange of information and data related to marine scientific research in the area concerned.”

	7. Whaling Convention Act		7a. The Whaling Convention Act authorizes the Secretary of Commerce to enforce the provisions of the *International Convention for the Regulation of Whaling. Undertake comprehensive studies of all whales found in waters subject to the jurisdiction of the U.S. and provide the recommendations to the U.S. Commissioner*
	8. Executive Order 13158 regarding Marine Protected Areas (2000)		8a. Help protect the significant natural and cultural resources within the marine environment for the benefit of present and future generations by strengthening and expanding the Nation's system of marine protected areas (MPAs). To this end, ... (b) develop a scientifically based, comprehensive national system of MPAs representing diverse U.S. marine ecosystems, and the Nation's natural and cultural resources;
	9. Dolphin Protection Consumer Information Act (1990-1997)		9a. Establishes dolphin-safe standards for fisheries
	10. Government Performance and Results Act		10a. The Government Performance and Results Act (GPRA) requires federal agencies to develop and implement an accountability system based on performance measurement, including setting goals and objectives and measuring progress toward achieving them.
	11. National Environmental Policy Act		11a. The NEPA requires each federal agency to assess the impact of alternatives for their actions (including activities conducted, funded or permitted by the agency) on the human environment. The cumulative impacts of each activity in combination with other natural and anthropogenic phenomena are included among the analyses.

	12. NOAA Ship Platform Requirements for the Ten-Year Period from FY 2003–FY 2012		12a. This 2003 study examined ship platform requirements for six NOAA mission areas, including 'fisheries surveys and science.' The principal recommendation in this mission area calls for the construction of two additional new NOAA Fishery Survey Vessels for a fleet total of six by 2011.
	13. Improving the Use of the "Best Scientific Information Available" Standard in Fisheries Management. NRC, 2004		13a. Guidance on use of best scientific information when information is uncertain.
	14. Science and Its Role in the National Marine Fisheries Service (NRC, 2002)		14a. The review finds that fisheries management depends on the availability of a variety of biological and environmental data on a timely basis. Fish assessments could be improved primarily through increased expenditures for data collection and analysis, where the most reliable assessments are obtained from fishery-independent surveys conducted by NOAA Fisheries.
	15. The Decline of the Steller Sea Lion in Alaskan Waters: Untangling Food Webs and Fishing Nets (2003)		15a. Guidance for the scientific studies needed to better provide the best information on the ecosystem of Stellar sea lions

	16. Endangered Species Act		16a. The ESA requires the Secretary of Commerce (with responsibility delegated to NMFS) to evaluate the status of species (or lower taxons) and determine whether or not the species is threatened or endangered; to designate critical habitat; and to evaluate Federal actions and ensure that these actions do not jeopardize the continued existence of threatened or endangered species or adversely modify critical habitat. The information standard for the ESA is the best available scientific information.Conduct a biological assessment for the purpose of identifying any endangered species or threatened species which is likely to be affected by such action if deemed necessary during a consultation process for a NMFS action (§ 1536)
	17. International Dolphin Conservation Program (1997)		17a. Establishes dolphin-safe standards for fisheries
	18. Marine Mammal Protection Act		18a. Protect marine mammals and their habitats to maintain sustainable populations
	19. U.S. Ocean Action Plan		19. See list of recommendations at end of file: USAOP#1 (pg11), USOAP#4 (pg13,14), USAOP#7 (pg16), USAOP#10 (pg19), USAOP#14 (pg36)
	1.Magnuson Stevens Fishery Conservation and Management Act (1976, 1996)		1f. Authorizes the placement of observers to collect information needed for fishery management and conservation as well as establishing a standardized reporting methodology to assess the amount and type of bycatch ocurring in the fishery.
			16 USC 1881c: FISHERIES RESEARCH
3. Ecosystems Monitoring, Assessment, and Forecasts			(a) In general - The Secretary shall initiate and maintain, in cooperation with the Councils, a comprehensive program of fishery research … to acquire knowledge and information, including statistics, on fishery conservation and management and on the economics and social characteristics of the fisheries.

			(c) Areas of research - Areas of research are as follows:
			(1) Research to support fishery conservation and management, including but not limited to, biological research concerning the abundance and life history parameters of stocks of fish, the interdependence of fisheries or stocks of fish, the identification of essential fish habitat, the impact of pollution on fish populations, the impact of wetland and estuarine degradation, and other factors affecting the abundance and availability of fish.
			1h. Provides authority to the Secretary to use private sector vessels to survey the fishery resources and to structure competitive solicitations to provide compensation for these surveys. The Act also directs the Secretary to provide a role for commercial fishermen in such research, including involvement in field testing and conservation engineering research. These activities are considered cooperative research with the fishing industry.
			National Standard 2 - Conservation and management measures shall be based upon the best scientific information available. The Secretary is responsible for producing a document that provides Councils with a summary of information concerning the most recent biological condition of stocks and marine ecosystems. Fishery Management Plans must specify objective and measurable criteria for identifying when the fishery to which the plan applies is overfished (with an analysis of how the criteria were determined and the relationship of the criteria to the reproductive potential of stocks of fish in that fishery)

			The Secretary shall initiate and maintain, in cooperation with the Councils, a comprehensive program of fishery research to carry out and further the purposes, policy, and provisions of this Act. Such program shall be designed to acquire knowledge and information, including statistics, on fishery conservation and management and on the economics and social characteristics of the fisheries. Section 404(c)(1), identifies areas of research, and the implicit need for more and better data: · Research to support fishery conservation and management, including but not limited to, biological research concerning the abundance and life history parameters of stocks of fish, the interdependence of fisheries or stocks of fish, the identification of essential fish habitat, the impact of pollution on fish populations, and other factors affecting the abundance and availability of fish.
			Promote the protection of essential fish habitat and provide a description of essential fish habitat for each fishery.
	2.Marine Mammal Protection Act		2a. Directs the agency to deploy observers on fishing vessels (establishes observer guidelines and duties) or requires vessels to monitor incidental mortality and serious injury of marine mammals during the course of commercial fishing.
			2b. 16 USC 1380: Marine Mammal Research Grants

			2c. (d) BERING SEA ECOSYSTEM PROTECTION (1) The Secretary of Commerce, in consultation with the Secretary of the Interior, the Marine Mammal Commission, the State of Alaska, and Alaska Native organizations, shall … undertake a scientific research program to monitor the health and stability of the Bering Sea marine ecosystem and to resolve uncertainties concerning the causes of population declines of marine mammals, sea birds, and other living resources of that marine ecosystem. The program shall address the research recommendations developed by previous workshops on Bering Sea living marine resources, and shall include research on subsistence uses of such resources and ways to provide for the continued opportunity for such uses. (2) To the maximum extent practicable, the research program undertaken pursuant to paragraph (1) shall be conducted in Alaska. The Secretary of Commerce shall utilize, where appropriate, traditional local knowledge and may contract with a qualified Alaska Native organization to conduct such research. (3) The Secretary of Commerce, the Secretary of the Interior, and the Commission shall address the status and findings of the research program in their annual reports to Congress required by sections 1373 (f) and 1404 of this title.
			2c. Protect marine mammals and their habitats to maintain sustainable populations
	3.Endangered Species Act		3a. Requires the federal government to protect and conserve species and populations that are endangered, or threatened with extinction. Observers are used to monitor impacts and certify that takes of endangered species do not exceed the authorized incidental take limit, as well as to provide data for recovery plans.
	4. Court Orders (Conservation Law Foundation v. Evans, No. 00-1134 (D.D.C.);Conservation Law Foundation and American Oceans Campaign v. Evans, et al., Fisheries Survival Fund, No. 01-10927		4a. Legislates manadatory placement of at-sea observers aboard vessels operating in certain fisheries

	(D.Mass.);Natural Resources Defense Council (NRDC), et al. v. Evans, et al., No. 01-0421 (N.D. Cal.); Natural Resources Defense Council, et al. v. Evans, et al., No. 01-0637 (N.D. Cal.); Pacific Marine Conservation Council, et al. v. Evans, et al., No. 01-2506 (N.D. Cal.); Natural Resources Defense Council, et al. v. National Marine Fisheries Service, et al., No. 02-1650 (N.D. Cal.); Center for Marine Conservation v. National Marine Fisheries Service, No. 99-00152 DAE, 2001 WL 340077401 (D.Hawaii 2001).		
	5. Convention for the Conservation of Antarctic Marine Living Resources (CCAMLR)		5a. Authorizes or directs the collection of data by fisheries observers

	6. International Commission for the Conservation of Atlantic Tunas (ICCAT)		6a. Authorizes or directs the collection of data by fisheries observers
	7. Inter-American Tropical Tuna Convention (IATTC)		7a. Authorizes or directs the collection of data by fisheries observers
	8. FAO International Plan of Action for Reducing Incidental Catch of Seabirds in Longline Fisheries		8a. Authorizes or directs the collection of data by fisheries observers
	9. PICES Treaty (North Pacific Marine Science Organization), ratified December 6, 1991		9a. Article III Purpose of the Organization - The purpose of the Organization shall be: (a) to promote and coordinate marine scientific research in order to advance scientific knowledge of the area concerned and of its living resources, including but not necessarily limited to research with respect to the ocean environment and its interactions with land and atmosphere, its role in and response to global weather and climate change, its flora, fauna and ecosystems, its uses and resources, and impacts upon it from human activities; and (b) to promote the collection and exchange of information and data related to marine scientific research in the area concerned.
	10. Ocean Dumping Act (Title II of the Marine Protection, Research, and Sanctuaries Act; 33 U.S.C. §1401 et seq.)		10a. Establishes a comprehensive monitoring and research program, to be undertaken by the Secretary of Commerce in coordination with the EPA and Coast Guard on the effects of ocean dumping

	11. National Coastal Monitoring Act (Title V of the Marine Protection, Research, and Sanctuaries Act; 33 U.S.C. § 2801-2805)		11a.Requires the Administrator of the Environmental Protection Agency and the NOAA Under Secretary, in conjunction with other Federal, state and local authorities, jointly to develop and implement a program for the long-term collection, assimilation, and analysis of scientific data designed to measure the environmental quality of the nation=s coastal ecosystems. 33 U.S.C. ' 2803
	12. National Oceanic and Atmospheric Administration Authorization Act of 1992		12a.Provides funding for NOAA's ocean and coastal programs under broad categories of observations and assessment in the National Ocean Service, including funding of programs under Title II of MPRSA
	13. Water Resources Development Act of 1992		13a. Section 503 states that the Administrator of the U.S. Environmental Protection Agency, in consultation with the Administrator of the National Oceanic and Atmospheric Administration, shall conduct a comprehensive national survey of data regarding aquatic sediment quality in the United States.
	14. U.S. Ocean Action Plan		14. See list of recommendations at end of file: USAOP#1 (pg11), USAOP#2 (pg11), USAOP#3 (pg12), USOAP#4 (pg13,14), USAOP#5 (pg15), USAOP#6 (pg16), USAOP#7 (pg16), USAOP#11 (pg22), USAOP#12 (pg22), USAOP#13 (pg35), USAOP#14 (pg36), USAOP#15 (pg36)
	16. National Environmental Policy Act		16a. The NEPA requires each federal agency to assess the impact of alternatives for their actions (including activities conducted, funded or permitted by the agency) on the human environment. The cumulative impacts of each activity in combination with other natural and anthropogenic phenomena are included among the analyses.

	17. Antarctic Marine Living Resources Convention Act		17a. The Antarctic Marine Living Resources Convention Act implements the *Convention on the Conservation of Antarctic Marine Living Resources*. The Act makes it unlawful to harvest marine species in a way that would damage ecological relationships among harvested, dependent, and related populations.
	18. Convention on the Conservation and Management of Pollock Resources in the Central Bering Sea (1994)		18a. To establish an international regime for conservation. management, and optimum utilization of pollock resources in the Convention Area; to restore and maintain the pollock resources in the Bering Sea at levels which will permit their maximum sustainable yield; to cooperate in the gathering and examining of factual information concerning pollock and other living marine resources in the Bering Sea; and to provide, if the Parties agree, a forum in which to consider the establishment of necessary conservation and management measures for living marine resources other than pollock in the Convention Area as may be required in the future.
	19. Food and Agricultural Organization of the United Nations		19a. FAO's Major Programme on Fisheries aims to promote sustainable development of responsible fisheries and contribute to food security. To implement this Major Programme, the Fisheries Department focuses its activities, through programmes in Fishery Resources, Fishery Policy, Fishery Industries and Fishery Information on three medium-term strategic objectives, including Global Monitoring and Strategic Analysis of Fisheries, with priority given to development of databases and analysis of information using modern information systems
	20. International Counsel for the Exploration of the Sea		20a. ICES is the organization that coordinates and promotes marine research in the North Atlantic.
	21. North Pacific Anadromous Fish Commission		21a. Emphasizing the importance of scientific research for the conservation of anadromous stocks in the North Pacific Ocean; Desiring to promote the acquisition, analysis and dissemination of scientific information pertaining to anadromous stocks and ecologically related species in the North Pacific Ocean;

	22. Whaling Convention Act		22a. The Whaling Convention Act authorizes the Secretary of Commerce to enforce the provisions of the *International Convention for the Regulation of Whaling. Undertake comprehensive studies of all whales found in waters subject to the jurisdiction of the U.S. and provide the recommendations to the U.S. Commissioner*
	23. Executive Order 13158 regarding Marine Protected Areas (2000)		23a. Help protect the significant natural and cultural resources within the marine environment for the benefit of present and future generations by strengthening and expanding the Nation's system of marine protected areas (MPAs). To this end, ... (b) develop a scientifically based, comprehensive national system of MPAs representing diverse U.S. marine ecosystems, and the Nation's natural and cultural resources;
	24. Coastal Ocean Program, § 201(c) of Public Law 102-567		24a. Authorizes a Coastal Ocean Program. "Such program shall augment and integrate existing programs of the National Oceanic and Atmospheric Administration and shall include efforts to improve predictions of fish stocks, to better conserve and manage living marine resources . . .".
	25. Government Performance and Results Act		25a. The Government Performance and Results Act (GPRA) requires federal agencies to develop and implement an accountability system based on performance measurement, including setting goals and objectives and measuring progress toward achieving them.
	26. National Sea Grant College Program Act		26a. The objective of the Sea Grant Act is "to increase the understanding, assessment, development, utilization, and conservation of the Nation's ocean, coastal, and Great Lakes resources by providing assistance to promote a strong educational base, responsive research and training activities, broad and prompt dissemination of knowledge and techniques, and multidisciplinary approaches to environmental problems." The Act directs the Secretary of Commerce to " . . .provide support for . . . national strategic investments in fields relating to ocean, coastal, and Great Lakes resources..." The Act funds a national sea grant network with 30 Sea Grant state programs, which include fisheries extensions.

	27. Marine Fish Stock Assessment Improvement Plan (2001)		27a. Description of the overall goals, associated resource needs, and development of performance measures for improving data collections, and assigning new FTEs to stock assessment activities. Used as basis for Capability 1 FTE needs
	28. NOAA Fisheries Data Acquisition Plan (1999)		28a. The Plan outlines a strategy for acquiring the critical at-sea fishery-independent data through an appropriate blend of NOAA Fishery Survey Vessel and chartered vessel days-at-sea. Primary basis for the vessel days at sea needed for Capability 1.
	29. NOAA NFS Requirements for Improved and integrated Conservation of Fisheries, Protected Resources and Habitat (2003)		29a. · Section 1. Improving the Information Base for Stewardship o Data Collection [Fishery Survey Vessels, Chartered Vessels Days at Sea] · Section 2. Determining Abundance/Yields – New Ecosystem Research and Analysis. o Improve and Expand Assessments [Fisheries Stock Assessment Improvement] o Incorporate Ecosystem Factors into Assessments [Fish Habitat Assessment and Restoration]
	30. Effects of Trawling and Dredging on Seafloor Habitat. NRC, 2002.		30a. Identifies research needs for better understanding of these effects.
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	32. Improving the Use of the "Best Scientific Information Available" Standard in Fisheries Management. NRC, 2004		32a.Guidance on use of best scientific information when information is uncertain.
	33. Marine Protected Areas: Tools for Sustaining Ocean Ecosystems. NRC, 2001.		33a.Provides guidance on the scientific needs for understanding benefits of MPAs.
	34. Science and Its Role in the National Marine Fisheries Service (NRC, 2002)		34a.The review finds that fisheries management depends on the availability of a variety of biological and environmental data on a timely basis. Fish assessments could be improved primarily through increased expenditures for data collection and analysis, where the most reliable assessments are obtained from fishery-independent surveys conducted by NOAA Fisheries.
	35. The Decline of the Steller Sea Lion in Alaskan Waters: Untangling Food Webs and Fishing Nets (2003)		35a. Guidance for the scientific studies needed to better provide the best information on the ecosystem of Stellar sea lions
	36. Coastal Wetlands Planning, Protection, and Restoration Act		36a. The Coastal Wetlands Planning, Protection and Restoration Act supports and funds coastal wetlands restoration and conservation projects, with particular emphasis on the state of Louisiana

	37. Coastal Zone Management Act of 1972 ; Coastal Zone Act Reauthorization Amendments of 1990		37a. Protect, develop and enhance coastal zone resources
	38. Coastal Zone Management Act of 1972 ; Coastal Zone Act Reauthorization Amendments of 1990		38a. Encourage and assist the states with development and implementation of management programs for coastal areas
	39. COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION, AND LIABILITY ACT		39a. The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA or Superfund) addresses the cleanup of hazardous waste sites. Under the Act, federal and state governments are directed to categorize hazardous waste sites and prioritize cleanup responses. CERCLA provides authority for NOAA to act as natural resource trustees for releases of hazardous substances. Establish necessary contracts, cooperative agreements to conduct cleanup activities
	40. Estuary Restoration Act		40a. Cooperate in carrying out scientific and other programs necessary to carry out the Act, including providing facilities and personnel. Especially for the Chesapeake Bay region.
	41. Global Change Research Act		41a Establish NOAA as an internationally recognized leader with credible scientific expertise in oceans and human health science and policy and to fund external and internal research, training and outreach and establishing NOAA Centers of Excellence. (OAR and NOS)
	42. Harmful Algal Bloom and Hypoxia Research and Control Act of 1998		42a. The Task Force, in cooperation with .... shall complete and submit to the Congress an assessment which examines the ecological and economic consequences of harmful algal blooms, alternatives for reducing, mitigating, and controlling harmful algal blooms, and the social and economic costs and benefits of such alternatives.

	43. Marine Protection, Research, and Sanctuaries Act of 1972		43a. Authorizes the Secretary of Commerce to "support, promote, and coordinate research on, and long-term monitoring of, sanctuary resources and natural processes that occur in National Marine Sanctuaries, including exploration, mapping, and environmental and socioeconomic assessment…"
	44. National Materials and Minerals Policy Research and Development Act		44a. Fundamental ocean research and discovery focused on gaining an understanding of the impacts of hydrothermal vents on virtually all major components of the global ocean environment. Maintain ongoing in situ biological, physical, and chemical time-series observations in and around representative active submarine volcanic and hydrothermal regions, coupled with remote monitoring using acoustic technology. (OAR-VENTS)
	45. Oil Pollution Act		45a. Assess damages for the natural resources under their trusteeship; develop and implement a plan for the restoration, rehabilitation, replacement, or acquisition of the equivalent of, the natural resources under their trusteeship.
	46. NMFS Strategic Plan for 2005-2010		46a. Manage uses of ecosystems by applying scientifically sound observations, assessments, and research findings to ensure the sustainable use of resources and to balance competing uses of coastal and marine ecosystems.
	47. Ocean.US		47a. Ocean.US was created by the National Oceanographic Partnership Program to coordinate the development of an operational and integrated and sustained ocean observing system (IOOS). Information from this IOOS system will serve national needs for: Detecting and forecasting oceanic components of climate variability; Facilitating safe and efficient marine operations; Ensuring national security; Managing resources for sustainable use; Preserving and restoring healthy marine ecosystems Mitigating natural hazards; Ensuring public health

	48. National Research Council Report "Oceanlab concept review" (1980)		48a. NOAA's Undersea Research Program (NURP) was created based on recommendations from the National Research Council (NRC). In this report, the NRC recommended "…the establishment within NOAA of a broad research program exploiting the use of existing facilities and enhancing present studies including saturation diving, submersibles, and remotely controlled unmanned vehicles…[this program would also] carry out the necessary scientific and engineering studies, development programs, and actual procurement necessary to bring the best relevant technology that can be available in the next few years into action in support of ocean research. This should include the design and construction of broadly useful work systems, special research tools, and a major support craft of advanced design."
	49. Sustaining Marine Fisheries. NRC, 1999		49a. Provides guidance for ecosystem investigations to broaden the scope of marine fisheries assessments and management.
	50. NOAA Ship Platform Requirements for the Ten-Year Period from FY 2003–FY 2012		50a. This 2003 study examined ship platform requirements for six NOAA mission areas, including 'fisheries surveys and science.' The principal recommendation in this mission area calls for the construction of two additional new NOAA Fishery Survey Vessels for a fleet total of six by 2011.
	1.Magnuson Stevens Fishery Conservation and Management Act		1a. National Standard 8 "(8) Conservation and management measures shall, consistent with the conservation requirements of this Act (including the prevention of overfishing and rebuilding of overfished stocks), take into account the importance of fishery resources to fishing communities
4. Economic and Social Science Monitoring, Assessment and Forecasts			1b. National Standard 1 "(1) Conservation and management measures shall prevent overfishing while achieving, on a continuing basis, the optimum yield from each fishery for the United States fishing industry."
			1c. National Standard 5 "(5) Conservation and management measures shall, where practicable, consider efficiency in the utilization of fishery resources; except that no such measure shall have economic allocation as its sole purpose."

			1d. National Standard 7 “(7) Conservation and management measures shall, where practicable, minimize costs and avoid unnecessary duplication.”
			1e. Conserve and manage the fishery resource off the U.S. coasts and U.S. anadromous species and Continental Shelf fishery resources
			1f. Promote domestic commercial and recreational fishing under sound conservation and management principles
			1g. Provide for preparation and implementation of fishery management plans to achieve and maintain the optimum yield of each fishery on a continuing basis
			1h. National Standard 2 - Conservation and management measures shall be based upon the best scientific information available. The Secretary is responsible for producing a document that provides Councils with a summary of information concerning the most recent biological condition of stocks and marine ecosystems. Fishery Management Plans must specify objective and measurable criteria for identifying when the fishery to which the plan applies is overfished (with an analysis of how the criteria were determined and the relationship of the criteria to the reproductive potential of stocks of fish in that fishery)
			1i. The Secretary shall initiate and maintain, in cooperation with the Councils, a comprehensive program of fishery research to carry out and further the purposes, policy, and provisions of this Act. Such program shall be designed to acquire knowledge and information, including statistics, on fishery conservation and management and on the economics and social characteristics of the fisheries. Section 404(c)(1), identifies areas of research, and the implicit need for more and better data: · Research to support fishery conservation and management, including but not limited to, biological research concerning the abundance and life history parameters of stocks of fish, the interdependence of fisheries or stocks of fish, the identification of essential fish habitat, the impact of pollution on fish populations, and other factors affecting the abundance and availability of fish.
			1j. The Secretary shall, in cooperation with …., develop recommendations for implementation of a standardized fishing vessel registration and information management system on a regional basis.

			1k. The Secretary shall report annually to the Congress and the Councils on the status of fisheries within each Council's geographical area of authority
	2.Marine Mammal Protection Act		2.Take into account fishery economics when designing Take Reduction Plans, which reduce the incidental mortality or serious injury of marine mammals incidentally taken in the course of commercial fishing
	3.Endangered Species Act		3. Take into consideration the economic impact, and any other relevant impact, of specifying any area as critical habitat.
	4. Executive Order 12866 for EPA (1993)		4. Assess the quanititative and qualititatve costs and benefits of all regulations, to maximize the net benefits (economic, environmental, public health and safety, and other advantages; distributive impacts; and equity)
	5. Regulatory Flexibility Act		5. Conduct a regulatory flexibility analysis, including analysing the economic impact on small entities, for every proposed rulemaking and final rule
	6. National Environmental Policy Act.		6a. Utilize a systematic, interdisciplinary approach, which will insure the integrated use of the natural and social sciences and the environmental design arts in planning and in decision-making that may have an impact on man's environment;
	7. Food and Agricultural Organization of the United Nations		7a. FAO's Major Programme on Fisheries aims to promote sustainable development of responsible fisheries and contribute to food security. To implement this Major Programme, the Fisheries Department focuses its activities, through programmes in Fishery Resources, Fishery Policy, Fishery Industries and Fishery Information on three medium-term strategic objectives, including Global Monitoring and Strategic Analysis of Fisheries, with priority given to development of databases and analysis of information using modern information systems

	8.American Fisheries Act		8a. Implement the fishing allocations specified for the Bering Sea Aleutian Islands pollock fishery
	9. Government Performance and Results Act		9a. The Government Performance and Results Act (GPRA) requires federal agencies to develop and implement an accountability system based on performance measurement, including setting goals and objectives and measuring progress toward achieving them.
	10. Interjurisdictional Fisheries Act		10a. The Interjurisdictional Fisheries Act promotes and encourages State activities in support of the management of interjurisdictional fishery resources throughout their range. The Act provides the Secretary of Commerce to assist states manage their interjurisdictional fishery resources. The Act authorizes appropriations for ...the three interstate fishery commissions
	11. National Sea Grant College Program Act		11a. The objective of the Sea Grant Act is "to increase the understanding, assessment, development, utilization, and conservation of the Nation's ocean, coastal, and Great Lakes resources by providing assistance to promote a strong educational base, responsive research and training activities, broad and prompt dissemination of knowledge and techniques, and multidisciplinary approaches to environmental problems." The Act directs the Secretary of Commerce to " . . .provide support for . . . national strategic investments in fields relating to ocean, coastal, and Great Lakes resources..." The Act funds a national sea grant network with 30 Sea Grant state programs, which include fisheries extensions.
	12. Fisheries Information System Plan		12a. To create an umbrella program that coordinates techniques to gather and disseminate data nationally while accounting for the unique characteristics of regional commercial and recreational fisheries.

	13. NOAA NMFS Requirements for Improved and integrated Conservation of Fisheries, Protected Resources and Habitat (2003)		13a. · Section 1. Improving the Information Base for Stewardship o Data Collection [Fishery Survey Vessels, Chartered Vessels Days at Sea] · Section 2. Determining Abundance/Yields – New Ecosystem Research and Analysis. o Improve and Expand Assessments [Fisheries Stock Assessment Improvement] o Incorporate Ecosystem Factors into Assessments [Fish Habitat Assessment and Restoration]
	14. Improving the Collection, Management, and Use of Marine Fisheries Data. NRC, 2000		14a. A particular need is to improve the quality of data from commercial and recreational fisheries, so that stock assessment scientists can be justifiably confident about using such data in their models. The committee believes that all the participants in fisheries management should take actions to improve the collection, management, and use of fisheries data. Included favorable recommendations for the Fishery Information System, recreational fishery data, cooperative research, new Fisheries Survey Vessels.
	15. Improving the Use of the "Best Scientific Information Available" Standard in Fisheries Management. NRC, 2004		15a. Guidance on use of best scientific information when information is uncertain.
	16. NMFS Social Sciences Program Plan		16a. Establishes a plan for improvement of social and economic research capability in NMFS
	17. Administrative Procedures Act		17a. The Administrative Procedure Act requires federal agencies to keep the public informed of their organization, procedures and rules; to develop standards for rule making process, and allow for the public's participation in the rule making process; and to restate the law of judicial review.

	18. U.S. Ocean Action Plan		18. See list of recommendations at end of file: USAOP#1 (pg11), USOAP#4 (pg13,14), USAOP#7 (pg16), USAOP#10 (pg19), USAOP#14 (pg36)
5. Data Management, Technology Transfer, Education and Outreach	**1. 33 U.S.C 883d**		1a. Conduct investigations and research in the geophysical sciences (including oceanography) in order to increase engineering and scientific knowledge. [collection, processing, storage and analysis of such data are a necessary adjunct to these functions]
	2. 33 U.S.C 883j		2a. Perform duties as necessary to assure the future availability and usefullness of ocean satellite data to the maritime community [collection, processing, storage and analysis of such data are a necessary adjunct to these functions]
	3. Executive Order No. 11564, dated October 6, 1970 (35 F.R. 15801) and in implementation of Reorganization Plan No. 4 of 1970,		3a. President Nixon transferred the National Oceanographic Data Center (NODC) to NOAA from the Department of the Navy. The Executive Order provided all of the power and authority related or incidental to, in support of, or necessary for, the operation of NODC may be utilized by the Secretary of Commerce for the operation of the program.
	4. Department Organization Order 25-5,		4a. The Office of the Assistant Administrator of NESDIS is responsible for operating an environmental service center in which oceanographic data and information are collected, processed, stored, analyzed, applied, and disseminated to the public and specialized users. Section 9.02e. NODC is directed to develop and maintain a national marine nvironmental data base generated by domestic and foreign activities. Section 9.08. In addition, NODC is tasked with the operation of the ICSU World Data Center-A for Oceanography, providing expertise as necessary for Intergovernmental Oceanographic Commission programs. Section 9.08d.
	5. Executive Order 12906		5a. Coordinating Geographic Data Acquisition and Access

	6. National Spatial Data Infrastructure		6., 7.,8. To improve management decisions in the coastal environment. Provide access to the long-term coastal data record to support monitoring, prediction, and analyses; to help in the formulation of public policy; to facilitate ecosystem approach to management. Create a unified long-term database of coastal and marine datasets. Create a catalog of coastal and marine data and create a virtual network of distributed nodes re data repositories. Develop operational ecosystem data portals that support Ecosystem Goal Programs and IOOS (Outcomes). Develop, in cooperation with state and local governments (including tribal), and the private sector, a coordinated National Spatial Data Infrastructure (NSDI) to support public and private applications of geospatially-enabled data. Establish a coordinated approach to develop (electronically) the NSDI (requirements)
	7. The Federal Geographic Data Committee		
	9. Public Law 102-567		9a. Requires a report to Congress on the status of data management capacity
	10. Public Law 102-567 section 106 (c) and (2)		10a. Every two years NOAA will assess whether there is adequate capacity to: * manage, archive, and disseminate environmental data and information collected, processed, or expected to be collected, processed, by NOAA and other appropriate departments and agencies
	11. U.S. Ocean Action Plan		11. See list of recommendations at end of file: USAOP#1 (pg11), USOAP#4 (pg13,14), USAOP#5 (pg15), USAOP#6 (pg16), USAOP#13 (pg35), USAOP#14 (pg36), USAOP#16 (pg37)

	13. Food and Agricultural Organization of the United Nations		13a. FAO's Major Programme on Fisheries aims to promote sustainable development of responsible fisheries and contribute to food security. To implement this Major Programme, the Fisheries Department focuses its activities, through programmes in Fishery Resources, Fishery Policy, Fishery Industries and Fishery Information on three medium-term strategic objectives, including Global Monitoring and Strategic Analysis of Fisheries, with priority given to development of databases and analysis of information using modern information systems
	14. PICES (North Pacific Marine Science Organization) (1991)		14a. "The purpose…(a) to promote and coordinate marine scientific research in order to advance scientific knowledge of the area concerned and of its living resources, including but not necessarily limited to research with respect to the ocean environment and its interactions with land and atmosphere, its role in and response to global weather and climate change, its flora, fauna and ecosystems, its uses and resources, and impacts upon it from human activities; and (b) to promote the collection and exchange of information and data related to marine scientific research in the area concerned."
	15. National Environmental Policy Act		15a. The NEPA requires each federal agency to assess the impact of alternatives for their actions (including activities conducted, funded or permitted by the agency) on the human environment. The cumulative impacts of each activity in combination with other natural and anthropogenic phenomena are included among the analyses.
	U.S. Ocean Action Plan		
			USOAP.1 Support a Regional Partnership in the Gulf of Mexico: Administration officials will meet with the appropriate regional representatives in the spring of 2005 to explore partnership opportunities. (pg. 11)
			USOAP.2 Advance Ocean Stewardship through Implementaion of Cooperative Conservation Executive Order (pg.11)
			USOAP.3 Develop an Ocean Research Priorities Plan and Implementation Strategy - The Implementation Strategy will identify how the various ocean science sectors (government, academic, industry, and other non-government entities) can and should be engaged, individually or through partnerships. These types of strategies would include cooperative research) (pg12)

			USOAP.4 Build a Global Earth Observation Network, Including Integrated Oceans Observation: Develop a strategy for integration and possible convergence of existing and future requisite coastal observing systems of the IOOS. (pg. 13, 14)
			USOAP.5 Create a National Water Quality Monitoring Network: The National Water Quality Monitoring Council will provide advice and recommendations regarding the design and creation of a coordinated, comprehensivenational water quality monitoring network. (pg. 15)
			USOAP.6 Implement New Legislation on Harmful Algal Blooms and Hypoxia: Reconvene the Interagency Task Force established under the Harmful Algal Bloom and Hypoxia Amendments Act of 2004, to coordinate research and actions onharmful algal blooms and hypoxia. (pg. 16)
			USOAP.7 Increase Ocean Education Coordination: Data collected through ocean and Earth observations are translated into usable forms for teachers, students, and the general public (pg.16)
			USOAP.8 Support the Ocean Science Initiative at the Smithsonian Institution (pg.17)
			USOAP.9 Harmonize Recreational Fishing Data Acquisition for Fishery Management Purposes (pg.19)
			USOAP.10 Establish Guidelines and Procedures for the Use of Science in Fisheries Management (pg.19)
			USOAP.11 Implement New National Bycatch Strategy (p. 22) - Specific mention of the national cooperative research program and coordinator (pg 22)
			USOAP.12 Propose New Limits on Atlantic Gill Net Fishing to Protect Dolphins and Sea Turtles - The proposal calls on NOAA to conduct research with the fishing industry into ways to promote safer fishing gear - this would be cooperative research. (pg.22)
			USOAP.13 Partnership Creation: White Water to Blue Water Initiative: Assist in the formation of dynamic partnerships that promote sustainable environmental management in the Caribbean region. (pg. 35)

			USOAP.14 Advance the Use of Large Marine Ecosystems (pg. 36)
			USOAP.15 Support an Integrated Approach to Oceans Management and Reduction of Land-based Pollution (pg.36)
			USOAP.16 Link the Global Marine Assessment and Global Earth Observation System of Systems: Seek to create international links between the Global Marine Assessment and Global Earth Observing System of Systems. (pg. 37)